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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/736,945

12/15/2003

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C-2950

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12/23/2009

EXAMINER

LAIOS, MARIA J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/736,945	Applicant(s) GESCHWINDT ET AL.	
	Examiner MARIA J. LAIOS	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 3,5-8 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,9,11-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 September 2009 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 4, 9, 11-14 have been amended. Claims 1-14 are currently pending of which claims 3, 5-8 and 10 were previously withdrawn from consideration for being directed to a non elected species.

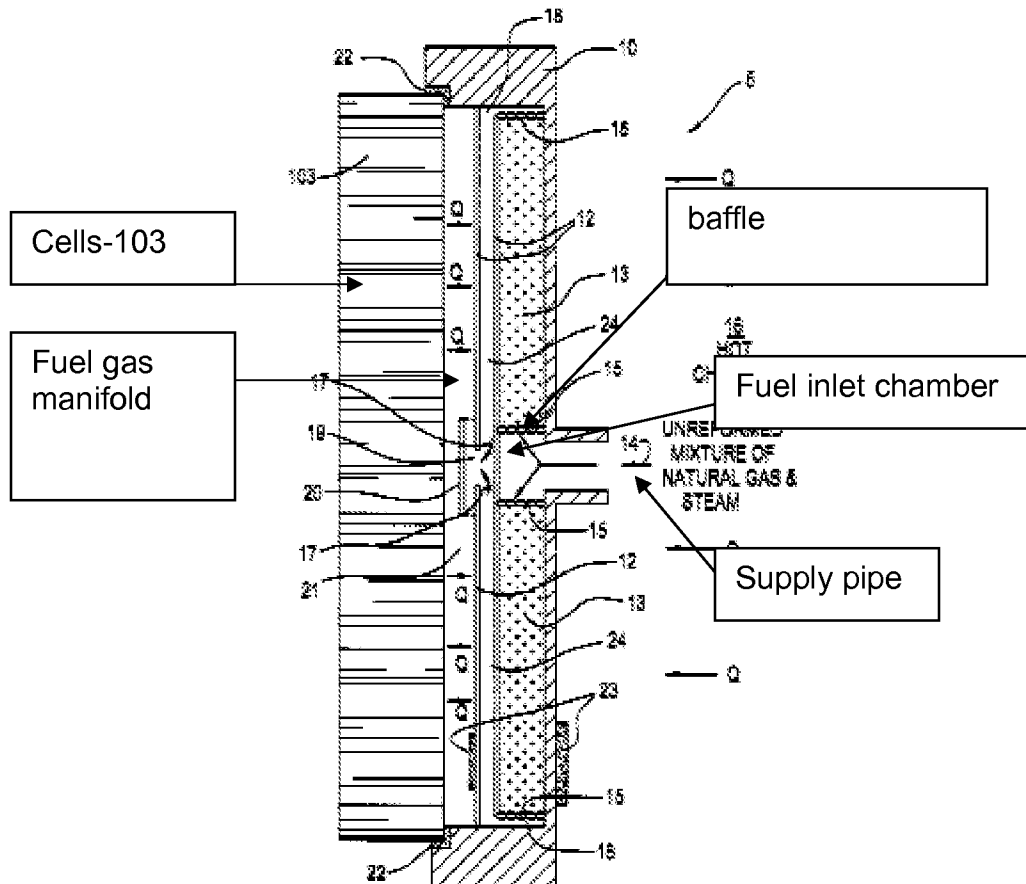
Claim Rejections - 35 USC § 102

4. Claims 2, 4, 9 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by Kneidel (US 6,326,095 B1).

As to claim 2, Kneidel discloses a fuel cell system (5) comprising a plurality of fuel cells (fuel cell stack 103) each of the fuel cells have a fuel flow field and have an inlet; A fuel gas supply pipe (14) a fuel gas inlet manifold in fluid communication with all of said fuel flow field inlets (21-plenum) and an inlet fuel gas distributor having a fuel inlet chamber interconnected with the fuel supply pip and including a permeable baffle

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through which fuel from the camber is flowed into the manifold (see figure 2 below and col. 3 lines 45-60).

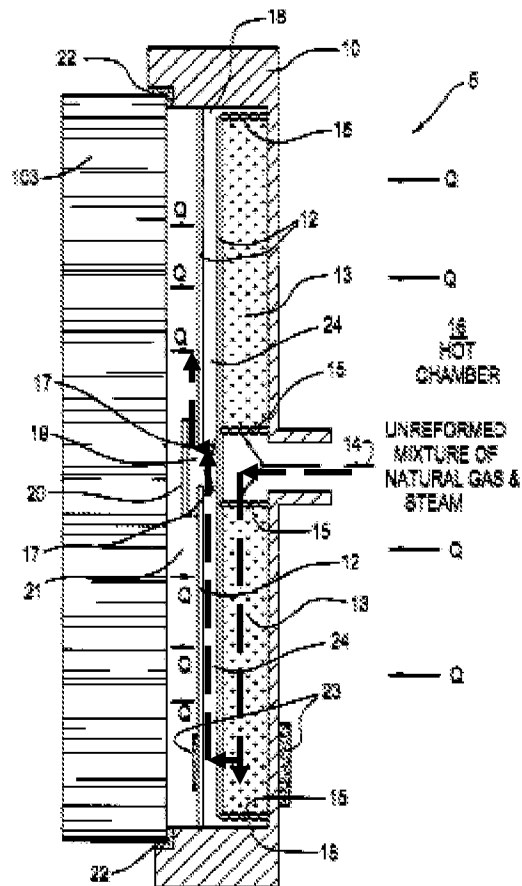


As to claim 4, Kneidel discloses the screens (15) which would be considered a solid and having small orifices.

As to claim 9, Kneidel disclose the manifold having a surface which causes the flow of the fuel through the baffle and the flow through the baffle impinges on the

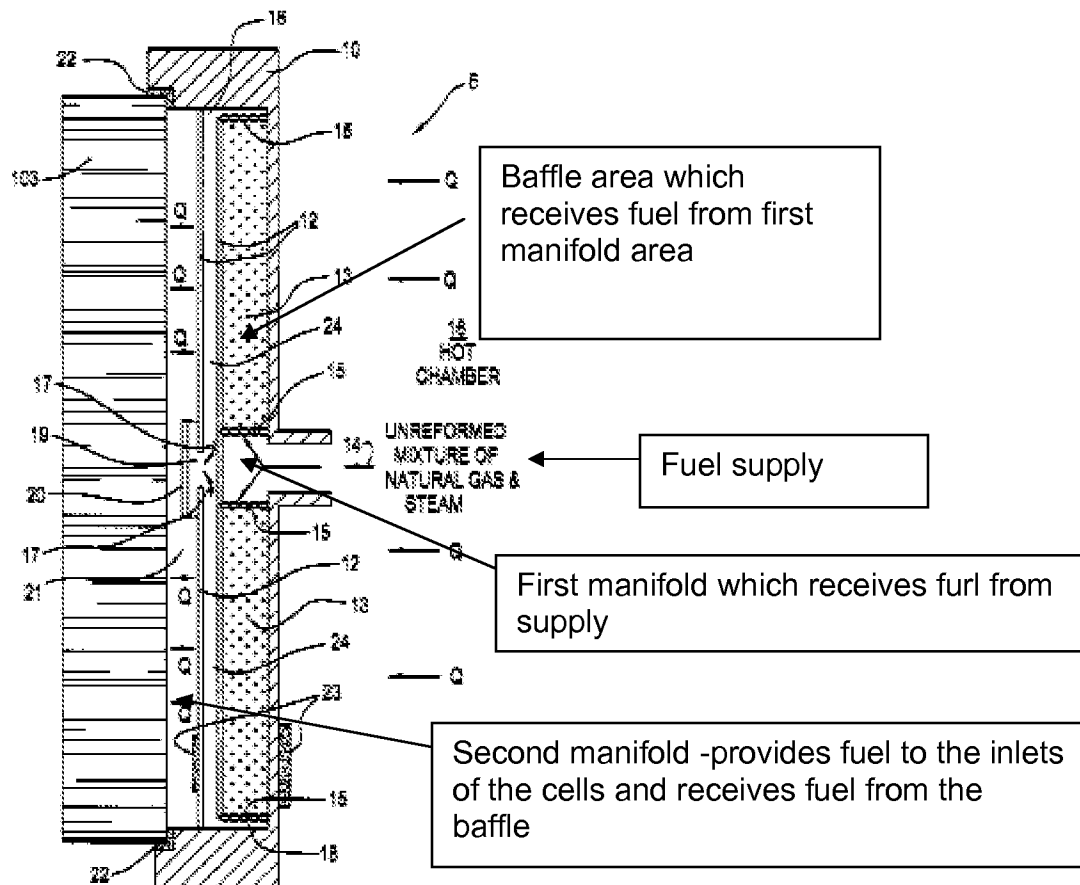
surface there by changing direction of the fuel and causing it to become uniform (see figure below)

The flow of the gas (dashed arrows below) show the direction of the gas as it flows thru the system. The gas flow changes direction when hitting a surface that is normal to the flow through the baffle.



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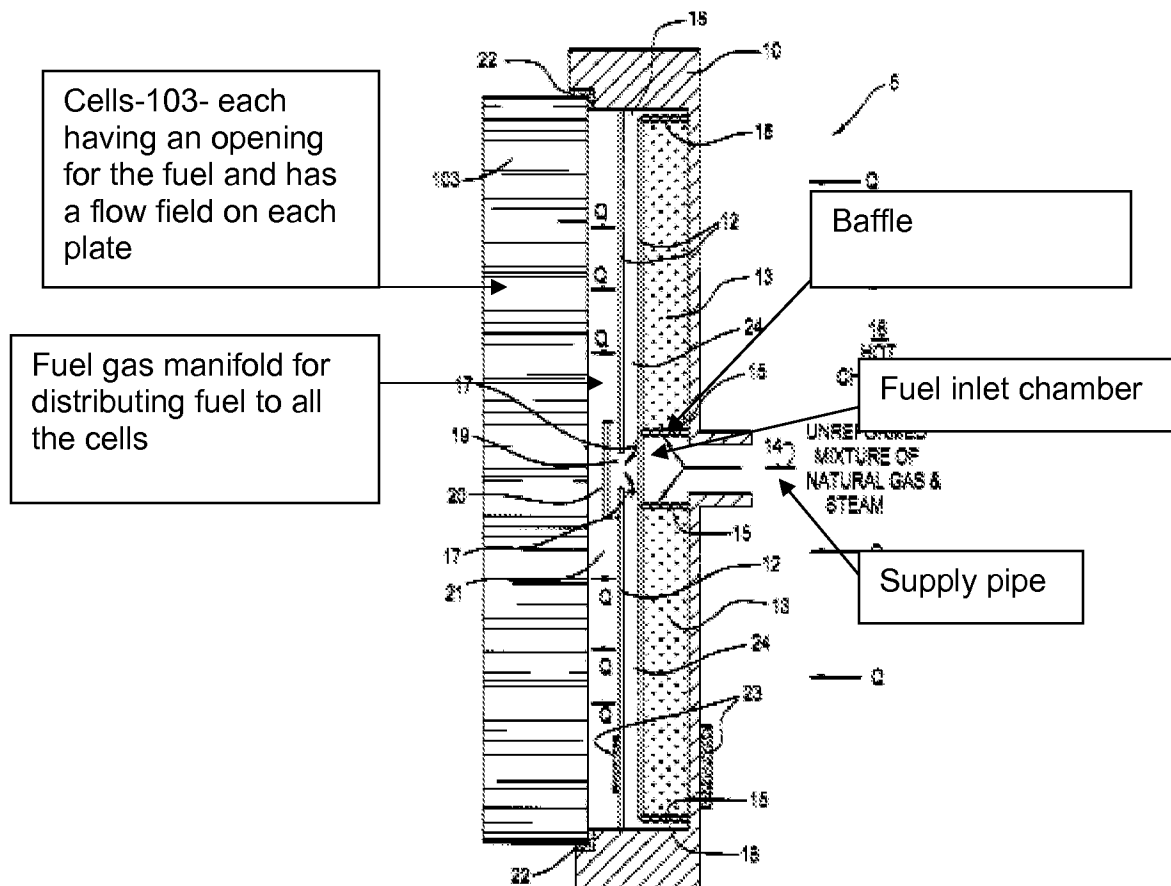
As to claim 12, Kneidel discloses a fuel cell system wherein fuel entering from the supply pipe is received into a chamber then the fuel flows into the baffle which then exits and enters a space that supplies fuel to the cells (see figure below).



Claim Rejections - 35 USC § 103

5. Claims 1 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Kneidel (US 6,326,095 B1) in view of Reiser (US 2002/0076582 A1) and LaPierre et al.

As to claim 1, Kneidel discloses a fuel cell system comprising a plurality of fuel cells (103) each of the fuel cells having a flow field and the plates have an opening for the fuel to enter; a fuel gas supply pipe (14); a fuel gas inlet manifold in fluid communication with all of said fuel flow field inlets (see figure below); an inlet fuel gas distributor which includes a fuel inlet chamber interconnected with the supply pipe and in fluid communication with the fuel gas inlet manifold (see figure below for explanation). Kneidel does not disclose a fuel recycle system for providing recycle fuel from the fuel outlets into the fuel inlet manifold downstream of the permeable baffle; an exhaust valve or a controller configured to open the valve during startup in order to purge the gas that is within the fuel cell system.



Reiser et al. discloses a fuel cell system and teaches the use of a fuel recycle system (150) which provides fuel exiting the stack to the entrance but does not disclose the recycle fuel is entering down stream of the baffle. However it would have been obvious to one of ordinary skill in the art at the time of the invention to send the recycle fuel downstream of the baffle of Kneidel because the baffle of Kneidel also is a catalyst material and in order to prevent the catalyst from contamination one of skill in the art

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would be capable of entering the recycle stream down stream of the catalyst/baffle.

Furthermore, Reiser et al. discloses an exhaust valve (172) which is at the exit of the system. The valve is used during start up in order to purge the gas which is located within the system (Paragraph 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the exhaust valve in the system of Kneidel because this would allow for the gas located within the system to be discharged prior to the start up of the system. Since the valve is downstream of the exiting gas it will be located a distance from the interconnection of the fuel inlet chamber and the supply pipe.

Kneidel and Reiser fail to explicitly disclose a controller controlling the valve.

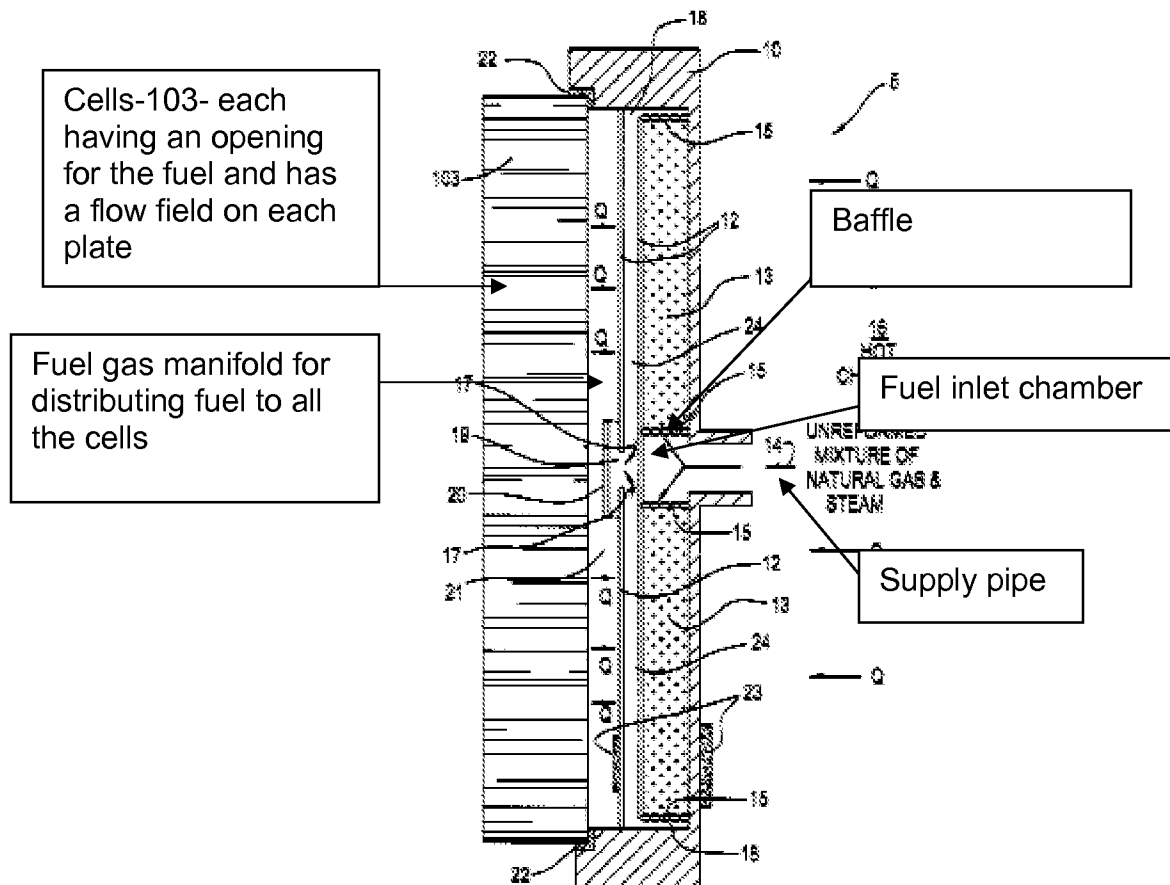
LaPierre et al. disclose a controller (150) for controlling the valves during start up. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the controller of LaPierre et al. to the system of Kneidel modified by Reiser because the controller can adjust the valve to control the flow rate of the fuel (col. 17 lines 57- col. 18 line 5)

As to claim 13, Kneidel discloses a fuel cell system comprising a plurality of fuel cells (103) each of the fuel cells having a flow field and the plates have an opening for the fuel to enter; a fuel gas supply pipe (14); a fuel gas inlet manifold in fluid communication with all of said fuel flow field inlets (see figure below); an inlet fuel gas

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distributor which includes a fuel inlet chamber interconnected with the supply pipe and in fluid communication with the fuel gas inlet manifold (see figure below for explanation).

Kneidel does not disclose an exhaust valve or a controller configured to open the valve during startup in order to purge the gas that is which the fuel cell system.



Reiser et al. discloses an exhaust valve (172) which is at the exit of the system. The valve is used during start up in order to purge the gas which is located within the system (Paragraph 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the exhaust valve in the system of Kneidel because this would allow for the gas located within the system to be discharged prior to the start up of the system. Since the valve is downstream of the exiting gas it will be located a distance from the interconnection of the fuel inlet chamber and the supply pipe.

Reiser fails to explicitly disclose a controller controlling the valve.

LaPierre et al. disclose a controller (150) for controlling the valves during start up. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the controller of LaPierre et al. to the system of Kneidel modified by Reiser because the controller can adjust the valve to control the flow rate of the fuel (col. 17 lines 57- col. 18 line 5)

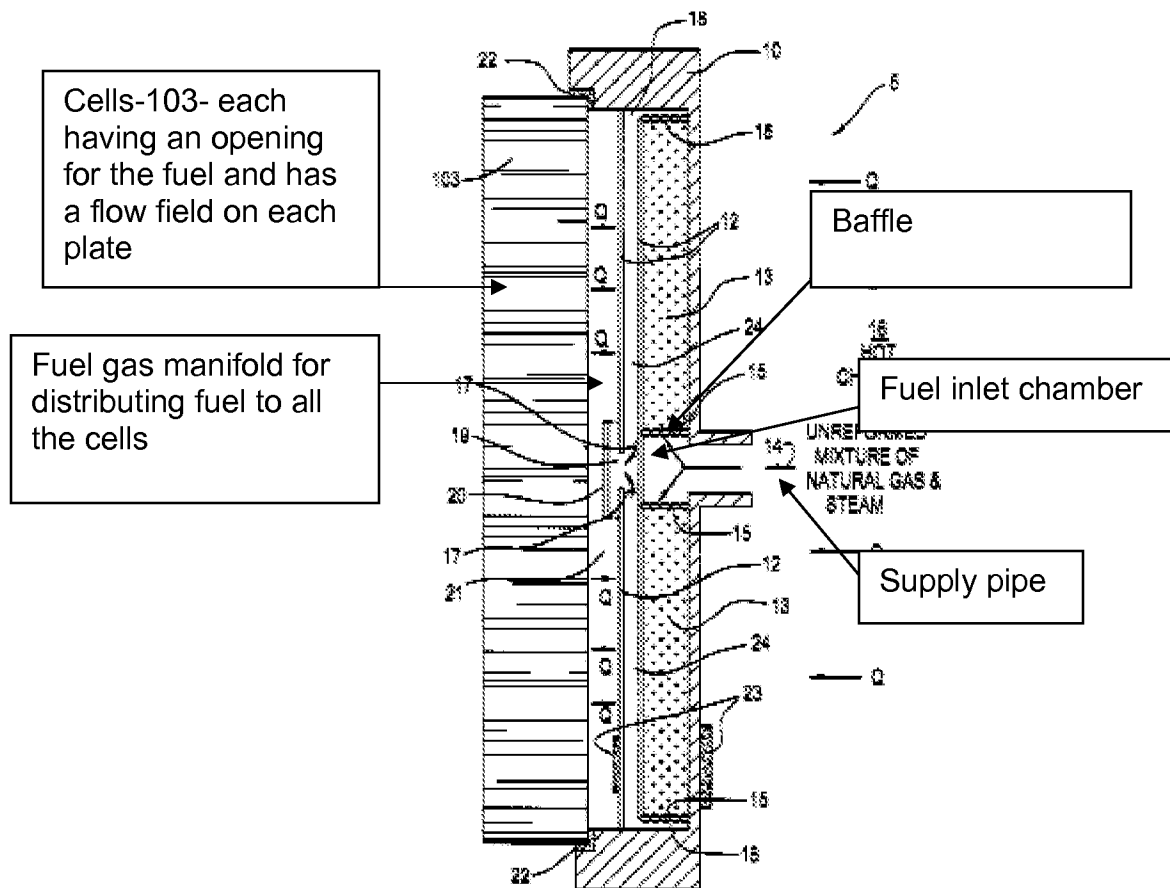
6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kneidel (US 6,326,095 B1) in view of Reiser (US 2002/0076582 A1).

As to claim 14, Kneidel discloses a fuel cell system comprising a plurality of fuel cells (103) each of the fuel cells having a flow field and the plates have an opening for the fuel to enter; a fuel gas supply pipe (14); a fuel gas inlet manifold in fluid communication with all of said fuel flow field inlets (see figure below); an inlet fuel gas

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distributor which includes a fuel inlet chamber interconnected with the supply pipe and in fluid communication with the fuel gas inlet manifold (see figure below for explanation).

Kneidel does not disclose a fuel recycle system for providing recycle fuel from the fuel outlets into the fuel inlet manifold downstream of the permeable baffle.



Reiser et al. discloses a fuel cell system and teaches the use of a fuel recycle system (150) which provides fuel exiting the stack to the entrance but does not disclose the

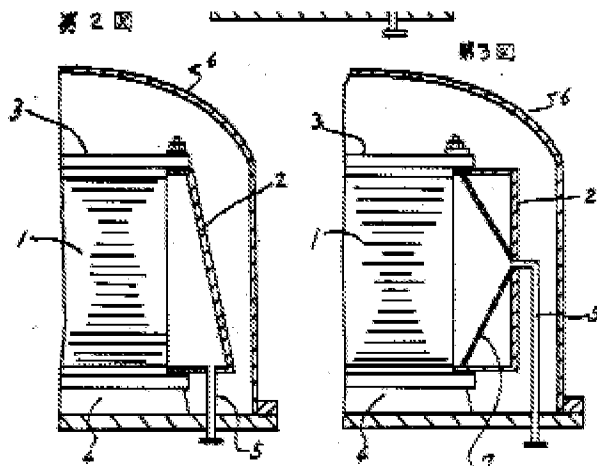
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recycle fuel is entering down stream of the baffle. However it would have been obvious to one of ordinary skill in the art at the time of the invention to send the recycle fuel downstream of the baffle of Kneidel because the baffle of Kneidel also is a catalyst material and in order to prevent the catalyst from contamination one of skill in the art would be capable of entering the recycle stream down stream of the catalyst/baffle.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kneidel (US 6,326,095 B1) as applied to claim 2, 4, 9 and 12 above, and further in view of Izumitani (JP 57-130330).

As to claim 11, Kneidel et al. discloses the fuel inlet chamber and the baffle, the fuel is received in one end of the inlet chamber as is shown above however Kneidel et al. does not disclose the inlet chamber is tapered becoming smaller at greater distances from the inlet. Izumitani discloses a cell stack (1) and with a manifold (2) and shows a tapered shape is formed between the cell and the manifold as a result the gas supplied to the unit cells is equalized (Abstract and Figures 2 and 3 below). It would have been obvious to one of ordinary skill in the art at the time of the invention to taper the inlet of Kneidel because Izumitani teaches this would ensure gas supplied to the cells is equalized.

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Response to Arguments

8. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection as necessitated by amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA J. LAIOS whose telephone number is (571)272-9808. The examiner can normally be reached on Monday - Thursday 10 am -7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795